Application of Structural Equation Modeling to Determine Emergency Department Patient Satisfaction Drivers

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Purpose of research

Divergent theories concerning what emergency department (ED) patients appreciate the most remains a fact despite heavy academic interest during the last decade. Four hypotheses of theoretically grounded causal effects between the latent (unobserved) variables *wait times, information delivery, infrastructure* and *safety* are tested by the use of structural equation modeling (SEM).

Method

The empirical material is provided by the Unit of Patient-Perceived Quality through a recently published telephone survey. The responses were clustered in four categories through an exploratory factor analysis and assessed for construct validity (Cronbach's alpha). The five hypotheses were analysed further by the use of a two-step structural equation modeling approach as prescribed by Anderson and Gerbing in 1988 to estimate path coefficients and appertaining statistical significance.

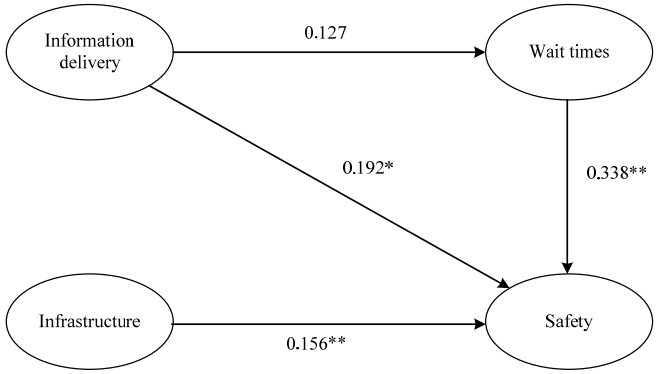
Discussion

In this study, the underlying mechanisms of what drives ED patient satisfaction has been illuminated and tested. This new knowledge can prove beneficial for multiple ED stakeholders as where to put effort in order to enhance patient satisfaction levels. During the past five years, SEM has harvested a lot of interest in a variety of fields in order to illuminate inter-coherencies between latent constructs.

Some limitations are worth mentioning. First, preclusion of other causal explanations cannot be ruled out from the obtained dataset. Second, other equally important latent constructs could shed further light over the ED patient satisfaction issue. Such constructs should include staff communication skills as this is deemed one of the top factors driving patient satisfaction. Last, future survey designs should be designed to allow subsequent SEM analysis to allow empirical testing of theory.

Results

Estimates of all stated hypotheses was obtained exploiting the best fitted structural model. Relationships between the included constructs alongside statistical strength is depicted in the figure to the right.



SEM results of tested hypotheses, non-standardized path coefficients only
Note: N = 685, p < 0.01 **, p < 0.05 *

Conclusion

This study has presented an empirical analysis of four hypotheses grounded in theory concerning what patients prefer the most when visiting an ED. By the use of a large patient satisfaction sample from 11 Danish EDs, none of the four hypotheses could be dismissed through the use of SEM. Even though the path coefficients obtained are of minor magnitude, most emphasised is the connection between perceived safety and the three remaining constructs 1) waiting times, 2) information delivery and 3) infrastructure. If these constructs are addressed in practice, ED patient satisfaction feedback is likely to improve.

ED decisions makers are endowed with insight to launch initiatives with potentially higher impact, serving to refine an important cog in a highly complex health system.